

Melton & McGeeney : Fall Semester 1993

ED 507: Strategies for Teaching Math and Science in
Elementary Schools

COURSE OUTLINE

Date	Topic	Assignments
✓ 9/1	Getting Acquainted Overview of course and requirements fieldwork and journal -article reviews -learning center pictures -Chapter Response Sheet Establish Cooperative Groups -Classbuilding -Teambuilding	Kauchak 1 Math Frmwk pg. 2-14 Sci Frmwk pg. 1-9
9/8	Research & Teaching Self-esteem Learning Styles/Teaching Styles Manipulatives	Math Frmwk <i>Aug.</i> 1, 2, 3 Sci Frmwk pg. 144-161
9/15	Frameworks (State to Classroom) -What are they all about? QUIZ <i>15 min</i> <i>opening/where are you at</i>	Kauchak 2 Sci Frmwk pg. 167-171 Math Frmwk pg. 104-116
9/22	Classroom Climate -Student Diversity Planning the Curriculum -Scope and Sequence	Kauchak 3, 4
9/29	Planning & Effective Tchng -Sample lesson plans	Kauchak 5&8
<i>10/2</i> 10/6	<i>Orange County math conference - Irvine HS.</i> Classroom Questioning <u>Math Concept Demo Lesson</u> <u>Quiz</u>	Lesson Plan
10/13	Peer Teaching of Math Concept <u>TAKE HOME MIDTERM</u>	Watch video Critique Midterm

10/20	Critical Thinking	Kauchak 9,10
10/27	Evaluation of Student Learning -portfolios Demonstration of Science Lesson Read/Discuss Chapter 12 <u>QUIZ</u>	Lesson Plan
11/3	<u>Peer teaching of Science Lesson</u>	Kauchak 11 Watch video Critique
11/10	Classroom Management Student Motivation Discipline Approaches	[Journals]
11/17	Using Computers in Math and Science Journals Learning Centers <u>QUIZ</u>	CENTERS
11/24	<u>Independent study night</u> Final planning of Learning Center	CENTERS
12/1	<u>LEARNING CENTER FAIR</u>	
12/8	Miscellaneous Catch-up Time! Everything you always wanted to know but were afraid to ask!	
12/15	Finals Week	

COURSE EVALUATION AND GRADING

<u>Assignment/Responsibility</u>	<u>Points</u>
Quizzes	15
Midterm Exam	15
Micro Tchng #1 (plan, lesson, critique)	p/np
Micro Tchng #2 (plan, lesson, critique)	p/np
<u>Math Learning Center</u>	25
Article Review	5
Class participation/Attendance	5
Chapter Responses and odd wkshts	10
<u>20 hours of observation in elementary rooms (3)</u>	p/np
<u>Fieldwork Journal</u>	25
total 100	

Approx. Points to Grade	
90-100	= A- to A
80-89	= B- to B+
70-79	= C- to C+
60-69	= D

- Math conference
- Bulletin board

[3 different classrooms
2 Districts]

JOURNAL

Rule space

You are required to keep a journal of your reflections on teaching and learning during this course. The journal is a vehicle by which you can extend and assess your own learning in the course and communicate this learning with us. We want to assure you that we will be the only ones who will read your journal, so please be open and honest in your writing.

Class reflections

One journal entry is to be made following each of our weekly class sessions. A good time to make these entries is immediately after the class when your impressions and feelings are fresh. These entries should be reactions to, reflections about, and analyses of in-class presentations and activities rather than a summary of your class notes.

Observation reflections

The rest of the journal is composed of ten entries. These entries can be completed only after you have finished your twenty hours of observations. An observation log must be signed by the classroom teacher and turned in with your journal. Using your notes from your class observations, you will compile these into ten curricular journal entries. They are:

TEN TOPICS

1. Classroom Climate
- ② 2. Planning & Curriculum (includes *teacher interviews, lower and upper grades*) *Summary of observ. → interviews*
3. Classroom Questioning
4. Use of Manipulatives in Math
5. Traditional Group Learning and Cooperative Learning
6. Critical Thinking Skills
7. Evaluation of Student Learning
8. Use of Computers in the School
9. Motivation and Discipline
10. Hands-On Science Lessons

In these journal entries, you will summarize what you have observed and then proceed to analyze what you have observed and relate it to the theories and information presented in ED. 507. Each topic will contain bits and pieces from several observations. This is the most crucial component of the journal entry. In all your journal entries, you should try to reveal your personal thoughts, opinions, and feelings, as well as, relate what you see and hear to the ideas and strategies presented in Ed 507. This reflective process should result in some personal and professional meanings and insights for you, hoping it will help you to think about what we do as teachers, why we do these things, and what the consequences of our daily classroom behaviors are.

[Handwritten signature]

NOTE: The format to be used for your journal entries pertaining to your elementary classroom visits is attached. All journal entries MUST be typewritten.

ARTICLES

math/sci; critical thinking

You will be required to submit ^{one} two article reviews from professional journals. One topic shall be science while the other is ~~science~~. You will choose one article to share orally with the class. The oral presentation can last no longer than five minutes. Think of a clever way to present the information quickly. We will reserve the right to end it after the five minutes!

The Article reviews will be one to two pages in length, typed, and proofread for mechanical and grammatical errors. Both article reviews are due the night of the presentation. Please attach a copy of the article with the review. Select articles that are appealing or provocative to you. One might be describing an activity or lesson while the other could be on a more timely educational topic or concern. Acceptable sources for articles include:

Educational Leadership — L 11 E25
Learning — LB 5 L43
Teacher — L11 T39
Phi Delta Kappan — L5 121 P4
Arithmetic Teacher — PA 1 A7
Instructor
Creative Classroom

Topic:

Summary of Observations:

Relationship of my observations to theories and information presented in Ed. 507:

My personal reactions and reflections: (thoughts, feelings, opinions, etc.)

Unanswered Questions: What I still don't understand about the topic:

EDUCATION 507 - CHAPTER RESPONSE SHEET

NAME _____ DATE _____

TEAM NAME _____

CHAPTER _____

1. 3 MOST IMPORTANT POINTS TO ME:

2. WHY THIS IS IMPORTANT TO ME:

3. A QUESTION I STILL HAVE:

MIDTERM
ED. 507
Melton & McGeeney

Choose **any** three Discussion Questions from the list below. Each question will be worth 5 points. Please answer each question thoroughly. When possible, try to relate the question to the teaching of math and science. Though we do not equate "Quantity" with "Quality," we look forward to reading answers that reflect your professional integrity. This is a take home quiz, though, and we encourage you not to spend more time than is necessary. If you were taking this midterm in class, you would only have 3 hours, so do yourself a favor and set realistic time limits. The midterm is due at the **beginning** of class next week and need to be typed as we discussed at the beginning of the semester. Here are the questions you may choose from:

Chapter 1 - #4, #8

Chapter 2 - #3, #4

Chapter 3 - #5

Chapter 4 - #1

Chapter 5 - #6

Chapter 8 - #5, #10



5pts

Joe Bustillos

ED 50.7

9/15/93

WITH INSTRUCTION BACK IN THE PALEOZOIC ERA, WHEN I ATTENDED ELEMENTARY SCHOOL, CONSISTED OF SITTING AT OUR DESKS IN ROWS & COLUMNS AND ANSWERING THE QUESTIONS IN OUR WORKBOOKS OR DITTOS. WE WERE NOT TO TALK TO OUR NEIGHBOR OR move FROM our SEAT. AFTER THE ALLOTED PERIOD, STUDENTS WERE SELECTED TO WORK OUT THE PROBLEMS ON THE BOARD. IT WAS A TERRIFYING EXPERIENCE. I DON'T REMEMBER MUCH "SCIENCE INSTRUCTION." THE SHIFT FROM BEING ~~FROM~~ "CORRECT ANSWER" ORIENTED TO PROCESS ORIENTED IS VERY IMPORTANT. ASKING "HOW DID YOU GET THERE" IS SO MUCH MORE INCLUSIVE AND THOROUGH IF THE GOAL IS TO TOUCH WITHIN THAN "90% = A, 80% = B, ETC."

THE SHIFT IN SCIENCE INSTRUCTION TOWARD A MORE "HANDS ON" APPROACH IS ALSO FUNDAMENTAL TOWARD THE DIFFERENT WAYS OF LEARNING AND CREATING INDIVIDUALS WITH AN APPRECIATION FOR THE "SCIENTIFIC WORLD" (OOPS, I'VE MIXED THE FIRST & SECOND PART OF THIS QUIZ TOGETHER).

ALSO INTEGRATING SCIENCE & MATH WITH LANGUAGE ARTS (WHICH WAS CALLED READING, SOCIAL STUDIES, WRITING, ETC. BACK IN THOSE DARK DAYS) IS MORE REFLECTIVE OF LIFE OUTSIDE THE CLASSROOM. "WORD PROBLEMS" WERE A TERROR IN MATH, PROBABLY BECAUSE THE STORY WAS MEANINGLESS.

Kind of hard to
read, you
think you
have the
science of the
elementary

I like this - it must reflect real life!

(3pts)

JOSEPH BUSTILLOS

ED 507 - 7th

QUIZ - 10/27/93



CHAPT 9 - QUESTION 3-

3pts
Well said Joe!
THINKING SKILLS MAY SEEM LIKE A FAD TO THOSE NOT FAMILIAR w/ BLOOM'S TAXONOMY. PART OF EDUCATION IS EQUIPPING STUDENTS TO BE ABLE TO USE THE FACTS (CONTENT) THAT WE ARE SUPPOSED IMPARTING UPON THEM. TO THOSE WHO SEE AN ANTAGONISTIC RELATIONSHIP BETWEEN THINKING SKILLS & CONTENT LEARNING ~~may be oversteering the~~ & PROBABLY DON'T SEE THAT THE TWO CAN WORK HAND IN HAND. TEACHING THINKING SKILLS MAY SIMPLY MEAN ASKING THE STUDENTS HOW THEY CAME TO SUCH A CONCLUSION OR WHY THEY FEEL THAT WAY ABOUT "X." IT'S NO LONGER ENOUGH TO DISPENSE NOTES, FACTOIDS AND MAKE CONNECTIONS

CHAPT 10 QUESTION 10

Small Group VS Large Group.

EDUCATION 507 - LESSON PLAN

Joe Bustillos

October 13, 1993

Grade 5

SUBJECT: Multiplication Practice/Exercise



1. **WHAT:** Multiplication Practice
2. **OBJECTIVE:** Students will use their multiplication skills to make "four in a row" on their playing cards
3. **MATERIALS:** 15 red chips and 15 blue chips for each pair of players, one playing board per pair
4. **MOTIVATION:** "Friendly" competition with partner to be the first to make "four in a row"
5. **PROCEDURE:**
 1. Review basic multiplication principles - "it's just a fast way of counting"
 2. Introduce "game":
 - objective:** first player to get "four in a row" of own color chip by multiplying the two chips on the Factor Board;
 - Rule:** There will be no "name calling" or taunting of your partner - violators will lose a turn; if you call out the wrong product or select a duplicate number you also lose a turn; **ADVANCED GAME:** 15-second time limit for each player to select a new number
 - To Start:** player 1 places a red chip on the factor board, player 2 place blue chip on the factor board, multiplies the two numbers and places a blue chip on the cooresponding number on the Product board;
 - To Play:** player 1 move red chip to a new number on factor board (do not touch the blue chip), multiplies the two numbers and places a red chip on the cooresponding number on the Product board; player 2 does the same thing with his/her blue chips; repeat until one player has four chips of the same color in a line on the Product board.
 3. Questions?
 4. Students pair off and begin game; option to play multiple games if finished before allotted time expires.

May I have
one of the
game boards?
☺ Thanks

Your presentation was smooth, Joe.
You explained the directions clearly
& modeled the first plays w/ the class.
Your closing lesson of strategies was very good. →

6. EVALUATION: Group Questions:

- would it be possible to play the game and use addition to come up with the product?
- if you didn't know how to multiply the upper numbers very well, is there a strategy to help you with the upper numbers?
- was there any strategy to winning?
- did anyone play a 15-second game?

7. ASSIGNMENT: Take playing card home and play against older siblings, parents or other adults (same card can be used for addition game against younger siblings)

8. CRITIQUE:

Remember, however, that this was to be a lesson that you designed w/ manipulatives. This was from someone else & didn't use manipulatives. Manipulatives represent one for one. Make

sure your science lesson is your design w/ hands-on. (11)

LESSON PLAN

Name Sally Melton
Date
Grade 2
Subject Multiplication Introduction

- I) WHAT: Introduction to Multiplication
- II) OBJECTIVE: Students will demonstrate their understanding of the basic multiplication process as repeated addition by using manipulatives.
- III) MATERIALS: 20 Beans or Goldfish, cups, spaceship model
- IV) MOTIVATION: Children will plan a party of their choice, choose number of guest , and imaginary foods
- V) PROCEDURE:
1. Teacher will model a problem while group works with individual manipulatives
 2. Each child will verbalize the problem, while teacher writes abstract form on the board.
 3. Volunteer students will make new problems while other children solve it using their manipulatives.
 4. Teacher will emphasize that multiplication is form of addition. ($\times 2$ = counting by 2's, etc.)
- VI) EVALUATION: Group questions
- What process did we practice today?
 - When do we use multiplication?
 - Why don't we just add?
 - Is it fun to make your own problems?
- VII) ASSIGNMENT: When you see "bare" problems or just facts, will you use your imagination to make up stories?
- VIII CRITIQUE:

Lesson Plan

Name _____

Date _____

Grade _____

Subject _____

1. WHAT: This is a concise statement of what is to be "covered" in the lesson. If the subject is arithmetic, then the WHAT might be "The Seven Family."
2. OBJECTIVES: State these BEHAVIORALLY. State the terminal behavior you expect the children to exhibit as a result of having had the learning opportunities you have planned for them.
3. MATERIALS: List material you and the children will use in the lesson. It is very easy to forget needed materials unless there is this very important REMINDER you plan for yourself!
4. MOTIVATION: This is your procedure through which you attempt to involve the children in the area of work; this is the planned attention-getting and activity-arousing part of the lesson.
5. PROCEDURE: The anticipated development of the lesson. Some pupil-teacher planning during the MOTIVATION phase of the lesson or during the PROCEDURE itself may alter your original plan, or some unforeseen event may change your plan, too. Formulate KEY QUESTIONS, anticipate ACTIVITIES, keep your TIMING in mind. SPECIAL CLASS ORGANIZATION and/or MOVEMENT, and provide for those who finish ahead of time, etc. In part, you are playing a guessing game; with experience, you'll improve!
6. EVALUATION: This is really a phase of PROCEDURE, but it is isolated here in order to focus attention upon it. Actually evaluation of the students' performance, both their behavior and their success in attaining the objectives of the lesson, goes on throughout the lesson. Some lessons call for a short quiz, an oral summary, or some other behavior/activity designed to provide "feedback" and to assess the attainments of the group. Children might discuss "how we did today" as they review their behavior and classroom standards.
7. ASSIGNMENT: Some lessons lead into further assignments, seatwork, or other "follow up" activities.
8. CRITIQUE: Leave space for some written comments made by yourself, or by others who observe the lesson. An honest evaluation of your performance, both in planning and in executing the lesson, can improve your teaching strategies and techniques markedly. A master teacher, no matter how long in the profession, constantly discovers more and better ways to approach the teaching/learning situation.

Hand on

MATH CONCEPT LESSON IDEAS

1. One-to-one correspondence *matching tushy up - mouse ears*
2. Adding and/or subtracting (no regrouping)
3. Adding and/or subtracting (with regrouping)
4. Multiplication (Facts)
5. Division (Facts)
6. Geometry (Shapes) or (Angles)
7. Measurement (Nonstandard or Standard)
8. Patterning
9. Logic
10. Functions
11. Fractional Parts
12. Percentages
13. Decimals
14. Graphing
15. Sorting
16. Perimeter
17. Area
18. Money
19. Time
20. Probability

NAME _____

DATE _____

LEARNING CENTER

THEME: _____

STRAND/SCIENCE TOPIC: _____

ACTIVITIES:

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____

Criteria:

- | | | |
|--|-------|-------|
| I. Inviting/motivating/creative | 5pts. | _____ |
| II. Self-explanatory/clear directions | 5pts. | _____ |
| III. Topic focused/minimum 8 activities | 5pts. | _____ |
| IV. Variety of learning modalities | 5pts. | _____ |
| V. Appropriate evaluation for activities | 5pts. | _____ |

TOTAL SCORE 25pts. _____

HOW I SEE MYSELF AS A GROUP MEMBER

CODE: 0 - not at all
1 - sometimes
2 - a lot

DID I.....

1. Listen to others?
2. Talk to others?
3. Ask questions?
4. Offer suggestions?
5. Explain math ideas?
6. Organize the group?
7. Encourage others?
8. Find mistakes?
9. Do calculations?
10. Disrupt the activity?
11. Daydream?
12. Take turns in speaking?
13. Share worksheets/equipment?
14. Concentrate on the task?

HOW I SEE OUR GROUP

The strengths of our group were: _____

Our group could improve by: _____

JOE BUSTILLOS

(15)

QUIZ

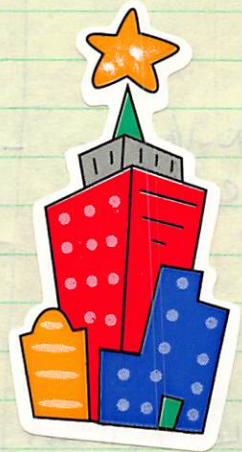
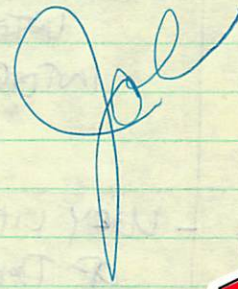
ADVANTAGES

DISADVANTAGES

① <u>IGNORANCE</u>	THIS LESSON IS NOT INTERFERED INTERRUPTED	IT DOESN'T CHANGE THE BEHAVIOR
② <u>NON-VERBAL CUES</u>	<ul style="list-style-type: none"> - VERY LITTLE INTERRUPTION OF THE CLASS LESSON - SHOWS THE STUDENT THAT YOU'RE PAYING ATTENTION "WITH IT"NESS 	DOESN'T REALLY ADDRESS THE "PROBLEM"
<u>SIMPLE SQUELCH</u>	- SHOWS STUDENT THAT YOU'RE PAYING ATTENTION	<ul style="list-style-type: none"> - CAN INTERRUPT LESSON - CAN BE AS DISRUPTIVE AS THE STUDENT BEHAVIOR
<u>EXTENDED RESPONSE</u>	CLEARLY COMMUNICATES UNACCEPTABILITY OF BEHAVIOR	<ul style="list-style-type: none"> - CAN CREATE UNNECESSARY ADVERSARIAL ATMOSPHERE - AS DISRUPTIVE AS STUDENT BEHAVIOR
<u>PUNISHMENT</u>	- COMMUNICATES CONSEQUENCES OF UNACCEPTABLE BEHAVIOR	- IF TIME IS TAKEN FROM LESSON CAN BE VERY DISRUPTIVE



THE PRINTER



EDUCATION 507 - CHAPTER RESPONSE SHEET

NAME _____ DATE _____

TEAM NAME _____

CHAPTER _____

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